

A STUDY OF THE TOWNSHIP AND COUNTY UNIT SYSTEMS
OF ROADS IN KANSAS AS THEY AFFECT THE
TAX BURDEN ON AGRICULTURE

by

MARSHAL BENTON HARRISON

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INTRODUCTION

This is a financial analysis of the township unit and county unit system of roads found in the various counties of Kansas.

Automobiles and trucks have become a necessity for both business and pleasure, and people are not satisfied with the roads of a generation ago. As the automobile was improved there developed a greater need for improvement in all roads.

The Federal Government has greatly aided the states in this newly created project of road building by cooperating with the state when the proposed road would in time form a connecting link in transcontinental highways. The states have also greatly aided the road building movement. This has often taken the form of cooperation between neighboring states in closing gaps between important trading centers.

Thousands of miles of roads have been constructed and are being maintained by state aid. However, as important as these roads may be, these many miles of roads are not for the most part the roads over which the bulk of our agricultural products are hauled from farm to market. The roads that are used most by the farm-to-market vehicles are constructed and maintained by either the county or the township.

The county and township road mileage constitutes about nine-tenths of the total mileage of roads in Kansas.

SOURCES OF REVENUE FOR COUNTY AND TOWNSHIP ROADS

The sources of revenue that are available for use in county unit road systems and township road systems are the gasoline tax and the property tax. Bond issues are often resorted to in order to obtain more money, but these are in time paid by a tax on property.

The state gasoline tax fund available for county use consists of \$900,000. This amount is transferred quarterly by the state treasurer from the highway fund to a fund known as the county and township road fund. This fund is distributed among the 105 counties of Kansas as follows:

"Forty per cent shall be distributed equally to the 105 counties. The remaining sixty per cent shall be apportioned and distributed among the 105 counties in proportion to the assessed valuation of the various counties, based on the previous year's assessment. The funds thus distributed to the various counties shall be used for construction, reconstruction, improvement, and maintenance of the county and township roads and bridges at the option of the county commissioners: Provided, That not less than fifty per cent of said fund shall be used on township roads and bridges, and shall be divided among the various townships in each county in the proportion that the mileage of township roads of the various townships bears to the total mileage of township roads in the county: Provided, That in counties that have adopted the county unit system said funds shall be divided

between the county road and bridge fund in such proportion as the board of county commissioners shall determine."¹

The gasoline tax is important in all of the counties and was the only source of funds for some of the western counties during three of the four years included in this study, because the county commissioners did not make a levy for roads and bridges.

The gasoline fund is placed with the county treasurer along with the fund that is received from the general property tax. In analyzing the effect of the tax burden on agriculture the amount received from the gasoline tax is deducted.

THE TOWNSHIP ROAD SYSTEM

The township road system is administered by the township board, which consists of three members for each of the townships. These officials are elected by popular vote for a term of two years each. Their titles are Township Trustee, Township Clerk, and Township Treasurer. The county clerk appoints the township trustee to be the township assessor, and this trustee is also chairman of the township board. This township board meets and prepares a budget to maintain the roads and bridges within the township. Under

¹ Kansas Statutes. chap. 225. sec. 7. 1929.

the township road plan the county engineer is supposed to work with the township board in an advisory capacity. The duties of the township board are principally the tax assessment of property and road administration. More than 95% of the disbursements are for township roads and the salaries of members of the township board.

In counties that have the township system of roads the county highway board, composed of the three county commissioners and the county road engineer, maintains and constructs the county roads between towns within the county and between the principal markets.

THE COUNTY UNIT ROAD SYSTEM

In counties which have adopted the county unit plan of roads there is a county highway board. This board consists of the three county commissioners and the county engineer.

Regardless of the number of townships in a county, the county is divided into three districts and one commissioner is elected from each district. County highway supervision is one of the numerous duties of the county commissioners. The county highway engineer is appointed by the board of county commissioners, but his appointment is subject to the approval of the state highway commission and he may be removed from office for cause.

OBJECTIVES

The objectives of this study are:

1. To determine whether or not the cost of construction and maintenance of roads are less under the county unit plan than under the township plan.
 - a. If there is a decreased cost, is it a result of advantages accruing from a larger volume of business? Discounts are often made for a large volume of business. Where storage space is available some extra material may be carried in stock. Savings are often made on the purchase price, as well as having supplies on hand when they are needed.
 - b. Does the purchasing power become greater when the miles of road are increased? The townships in Riley County seldom spend more or collect more than \$6000. per township annually for their road and general funds, whereas, the total collected in counties the size of Riley County and with the wealth of Riley County frequently is from \$60,000 to \$90,000 annually for roads and bridges alone. With the increased purchasing power more power machinery may be purchased. Large machines may result in savings in maintenance and construction of roads.

This is important in many of the counties where the roads to be maintained are of the heavy sticky soils.

2. To determine whether or not the tax burden is partly shifted to cities of the first, second, and third classes following the adoption of the county unit system of roads.

Under the present law, cities of the first, second, and third class are not taxed to help maintain township roads. The cities of all classes are taxed to maintain their own streets and bridges. After the adoption of the county unit system of roads all cities of all classes are assessed to maintain all of the county highways.

3. To determine whether or not the tax burden on agriculture will be lowered by the adoption of the county unit system of roads.

A reduction is believed to be made possible by the increased tax base. Under the county unit plan the present tax base would be increased by the amount of the assessed valuation of the cities of the first, second, and third class that are in the county. In the case of Riley County the addition of Manhattan would increase the taxable base by \$10,000,000.

Several of the counties in southeastern Kansas that

have adopted the county unit system will illustrate this clearly. When Burborn County adopted the county unit system of roads the taxable base was increased 54%. In the case of Labette County the tax base was increased 65%. The larger percentages are added only when the county contains large cities. In Ellis County the tax base was increased 42%. In Wichita County the base was increased 9.7%.

4. To determine whether or not better roads can be maintained by centralization of management. Many of the dirt roads in the counties of southeastern Kansas have, since the adoption of the county unit system, been replaced by crushed rock. In a number of counties, when the county unit system of roads was adopted, one of the first things done was to close the gaps that existed between township roads. One township would frequently maintain a passable road up to the township line. It often happened that the adjoining township did not consider that piece of connecting road sufficiently important to give full maintenance to the road. As a result the road was rough in dry weather and almost impassable in wet weather. However, it is possible by cooperation among the different township boards to work out a satisfactory program - one that will eliminate the gaps,

without necessarily adopting the county unit system of roads.

5. To determine whether or not favoritism may be practiced in either system of road construction. Under the county unit system of roads, all county highways are maintained under the direction of the county commissioners. They must decide the amount of improving that is to be done on any road, also the time that the improving will be done. It is possible that some roads will not be improved at the time most desired by, or advantageous to, the patrons of the road.

METHOD OF INVESTIGATION

1. A study of the entire state.

The State of Kansas has 1,547 townships. Of these, 245 townships are located in counties that have adopted the county unit road system. Kansas has 81 counties with the township system of roads. In these 81 counties there are 1,302 townships, each having a highway board consisting of three members. This makes 3,906 township highway board members. Each of the 81 counties has three county commissioners, and most of the counties have a county highway engineer. These four people act as directors of the county roads, making approximately

300 county road directors, and about 3,900 township road administrators in the 81 counties that have the township road system.

Of the 105 counties of Kansas 24 counties have adopted the county as a road unit, and none has abandoned it since adoption. It has not been uncommon for the tax rate for road maintenance to rise immediately after the adoption of the county unit system of roads. This was true more often in the early years of the county unit plan when the first levy made by the county was largely a matter of guess work. The budget law of 1933 has eliminated this blind guessing. On account of the financial distress that has prevailed throughout the period of this study, many of the counties have reduced their levies far below the level that would maintain their roads in a desirable manner. When the distress is sufficiently relieved it is expected that the tax rates will be materially increased. This assumption is substantiated by the announcement of recent rates.²

2. An intensive study of the road systems of Riley and Jefferson counties for the years 1931 to 1934, inclusive.

Riley and Jefferson counties were chosen for an

²County Tax Rate Bulletin. Kansas Municipalities, 22(1):55-58. Jan. 1936.

intensive study. Riley County has the township system of roads and Jefferson County has the county unit system of roads. The costs and efficiency of the different systems in these two counties were analyzed.

In selecting two counties for an intensive study an effort was made to select counties that compared favorably in extent of land devoted to agriculture, in livestock, and in assessed valuation. The total valuation of Riley County is greater than that of Jefferson County but after the deductions for the valuations of the cities of second and third class are made in the two counties the tax base in Riley County is smaller than the tax base in Jefferson County. This is true because where the county is the unit all cities of all classes are taxed to maintain all the county highways.

RILEY COUNTY ROADS

The supervisory board for the Riley County highway department consists of the three county commissioners and the county highway engineer. The county road mileage has varied within a range of 142 miles in 1931 to 149 in 1934.

The Riley County highway records are well kept. A system of allocation of expenditures was used which would enable anyone to readily collect data. This is true in

regard to the cost of any or all of the fourteen patrols that were maintained by the county highway department.

The plan followed in analyzing the costs of roads and bridges in Riley County was to group the items of expense under nine headings. As eight of the nine items of cost were included in both the road and bridge expenditures tables were constructed showing the combined expenses for each year. These tables were analyzed for the entire period of this study under the different items of expense.

Salary and Labor

Salary and labor was the largest item of expense. This item amounted to more than 45% of the total expenditures in 1931. (See table 1.) This included the salary of the county engineer, the assistant engineer, the clerk, the patrolmen, and other persons employed to help maintain and construct the roads and bridges.

Table 2 shows that the salary and labor item for 1932 amounted to 65% of the total expended. This is not so large an increase in the payment made for salary and labor over 1931 as would seem because the total expenditures for the year were reduced almost 9%. Labor was increased, but all other expenses were reduced as much as possible. This probably was done to provide work for more people because of

Table 1. Riley County Highway Department Road and Bridge Expenditures for 1931.¹

Item	Road	Bridge	Total
Salary and Labor	\$35,456.72	\$ 4,416.00	\$39,872.72
Supplies	6,370.69	13,943.15	20,313.84
Equipment Purchased	8,619.40	2.85	8,622.25
Equipment Repair	2,768.31	33.80	2,802.11
Gasoline and Oil	8,097.47	172.14	8,269.61
Right of Way	2,874.41		2,874.41
Employee Insurance	94.90		94.90
Contract Payment		4,359.18	4,359.18
Power and Telephone	<u>197.90</u>	<u> </u>	<u>197.90</u>
Total	\$64,479.80	\$22,927.12	\$87,406.92

the declining incomes and reduced purchasing power. The salaries of the administrative officials were reduced.

In 1933 the amount spent for salaries and labor, as shown in table 3, was practically the same as the amount spent for that item in 1932. The total expenditures were increased, however, so that approximately 56% of the total was paid for salaries and labor.

In 1934 the amount spent for salaries and labor was increased a few hundred dollars. (See table 4.) Tax

¹All data were taken from county highway engineer's records.

Table 2. Riley County Highway Department Road and Bridge Expenditures for 1932.

Item	Road	Bridge	Total
Salary and Labor	\$48,097.92	\$2,940.28	\$51,038.20
Supplies	5,135.00	6,412.02	11,547.02
Equipment Purchased	1,131.99		1,131.99
Equipment Repair	2,459.23		2,459.23
Gasoline and Oil	7,063.72	10.92	7,074.64
Right of Way	2,302.42		2,302.42
Employee Insurance	2,553.29		2,553.29
Power and Telephone	<u>365.08</u>	<u> </u>	<u>365.08</u>
Total	\$69,108.65	\$9,363.22	\$78,471.87

collections in Riley County were 1% higher in 1934 than in 1933, and the total amount spent for roads and bridges was increased about 6%. The total amount spent for the county highway increased proportionately more than the amount spent for salary and labor, consequently the percentage of the salary and labor item to the total expenditures decreased to 52%.

Supplies

The amount spent for supplies was second in importance to the total spent for roads and bridges. Supplies consist

Table 3. Riley County Highway Department Road and Bridge Expenditures for 1933.

Item	Road	Bridge	Total
Salary and Labor	\$38,874.62	\$12,182.10	\$51,056.72
Supplies	6,863.29	17,008.02	23,871.31
Equipment Purchased	2,696.90	476.00	3,172.90
Equipment Repair	3,020.67	28.52	3,049.19
Gasoline and Oil	7,587.60	105.32	7,692.92
Right of Way	430.50	10.00	440.50
Employee Insurance	1,108.20	31.85	1,140.05
Power and Telephone	<u>357.45</u>	<u> </u>	<u>357.45</u>
Total	\$60,939.23	\$29,841.81	\$90,781.04

of lumber, nails, cement, bridge timbers, gravel, and like materials used in construction and maintenance of roads and bridges. A greater portion of the supplies purchased was used for bridges than was used for roads. As shown by table 1, more than \$20,000 was spent for supplies in 1931. This amounted to approximately 23% of the total expenditures for that year.

Table 2 shows there was a large decrease in the purchase of supplies in 1932; only 14% of the total was spent for supplies. The weighted average of the purchase of supplies for the four year period was 24.5% of total expenses.

Table 4. Riley County Highway Department Road and Bridge Expenditures for 1934.

Item	Road	Bridge	Total
Salary and Labor	\$39,662.41	\$11,847.76	\$51,510.17
Supplies	5,800.95	25,468.42	31,269.37
Equipment Purchased	1,479.63	720.00	2,199.63
Equipment Repair	3,578.84	59.34	3,638.18
Gasoline and Oil	7,489.26	109.13	7,598.39
Right of Way	487.00	200.00	687.00
Insurance	261.68		261.68
Power and Telephone	<u>556.03</u>	<u> </u>	<u>556.03</u>
Total	\$59,315.80	\$38,404.65	\$97,720.45

Table 3 shows the amount spent for supplies in 1933 as more than twice the amount spent for that item the previous year. This accounted for the greater portion of the increase in expenditures for all purposes. When supplies are allowed to run too low, even for a period of one year, heavy replacements are bound to follow.

In 1934 another increase was made in expenditures for supplies. The amount spent for this item was about 30% of the total. (See table 4.)

Equipment Purchased

The equipment purchased consisted of various road and bridge machinery; trucks, tractors, hoists, concrete mixers, rock crushers, graders, and similar machinery. Most of the equipment purchased was for road work as is shown in table 1. This item amounted to about 10% of the expenditures for 1931.

Tables 2 to 4, inclusive, show that in 1932 equipment purchases were reduced, being about 13% of the previous year, and constituting less than 2% of the total amount spent for roads and bridges. More equipment was purchased in both 1933 and 1934 than in 1932, but not a great amount, being about 3% and 2%, respectively, of the total purchases for the two years.

Equipment Repairs

Equipment repairs did not fluctuate as much as other expenses. A part of the repairs was done by local repair men, the remainder was done by the men employed by the county. The repairs constituted a little more than 3% of the total expenditures for the period studied.

Gasoline and Oil

Gasoline and oil amounted to about 8% of the total expenditures of the county highway department. (See tables 1 to 4, inclusive.) The amount remained fairly constant throughout the period of this study.

Right of Way

Right of Way costs consist of payments made to property owners for land when it was found to be desirable to change the location of the road or to straighten dangerous curves.

In 1931 and 1932 these payments amounted to only a little more than \$2000 each year, and were relatively unimportant in 1933 and 1934.

Insurance

Insurance was an item of expense in Riley County for a number of years. This includes both machinery and employee insurance. Following a highway truck accident in 1932 accident insurance was carried on road employees by the highway department. This plan of insurance was later discontinued. Payment for insurance constituted more than 3% of the total amount spent in 1932, and was about the same amount in 1933.

Contract Payment

Contract payment includes items of construction or maintenance that are advertized under the competitive bidding system. This plan had wide usage in highway and bridge construction until the last few years. Contracting the work was advisable before the counties owned sufficient equipment to do the construction that was needed. Another factor that caused various counties to abandon contract payments was that it often resulted in the work being done by non-resident labor. Contract payments have not been used in Riley County since 1931. (See table 1.)

Power and Telephone

Power and telephone are comparatively small items, and make little difference in the total amounts spent. The county highway shop is equipped with electrically driven machinery.

RILEY COUNTY TOWNSHIP ROADS

Riley County is divided into 15 townships. Each township has a board consisting of three members, who are elected by popular vote. This makes 45 township road officials in Riley County. One of the duties of the township board is to administer the road and bridge fund. The

township road mileage varied between 749 miles in 1931 and 720 miles in 1934.

The township board members file annual reports of township expenditures, two reports with the county clerk, and with the county highway department. In analyzing the township records of expenditures it was found to be impossible to properly allocate the different items of expense. Frequently an entry would include several things, such as, board service, stamps, and labor; or board service, etc.; or labor and merchandise. Such entries in a public record defy proper allocation of expense. Many of the township records are well kept, others are poorly kept.

Several townships had a surplus of money on hand at the beginning of this study. In some cases this surplus, together with the monies received from the gasoline tax, enabled them to make smaller levies for township purposes during the four year period under consideration. In other cases it became a loss as the money had been deposited in banks that later failed.

A different plan was followed in arranging the tables for a discussion of the Riley County township roads. A few townships maintained a regular patrolman, and it was thought advisable to show this item. Most of the townships paid varying amounts to the Riley County Highway Department for

road or bridge work done, and these amounts are shown. Different amounts were withdrawn from the road fund by the board members for their services. These amounts were not constant from year to year or from township to township. These three items of expense were for labor and should be combined with the labor item in analyzing the data.

Labor

Labor, including patrol, paid to Riley County, and to the township board, was the largest item of expense during the four years. (See tables 5 to 8, inclusive.) This item was 70% of all expense in 1931, 76% in 1932, 70% in 1933, and 67% of all expenses in 1934.

Patrol

Several of the townships maintained regular patrols on their roads, or, at least, on part of their roads. These townships also employed some other labor. This was all farm labor. Two townships hired the Riley County Highway Department to maintain a few miles of road for them. A total of approximately 50 miles of township road was maintained by the county road department. In each case the township mileage joined the regular county patrol at some point. This arrangement has proved satisfactory apparently because it is

Table 5. Road and Bridge Expenditures in Townships of Riley County for 1931.¹

Township	Labor	Patrol	Paid to Riley County	Supplies	Equipment Purchase	Equipment Repair	Right of Way	Board	Undivided	General	Notes and Interest	Total	No. of Miles Maintained	Cost per Mile
Ashland	\$ 267.60	\$1,675.00	\$ 294.28	\$ 122.56	\$	\$ 44.86	\$ 31.50	\$ 101.70	\$ 71.56	\$ 15.00	\$	\$ 2,624.06	25.02	\$104.88
Bala	4,581.03			1,375.05	384.56	8.75		154.50	127.65			6,631.54	69.75	95.07
Center	1,575.78		983.85	453.54		4.00		10.50	1,140.53			4,168.20	30.60	136.21
Fancy Creek	3,810.66			802.03		29.70		5.25	209.99			4,857.63	54.00	89.96
Grant	1,382.88		13.00	377.67	74.66	88.03	305.80	126.20	163.90		5.54	2,537.68	42.32	59.96
Jackson	2,683.28		1,088.75	221.99	31.50	8.75	5.00	187.30	188.67		2.25	4,417.49	41.99	105.20
Manhattan	1,840.00	2,132.85	842.33	1,157.67		312.54	654.15	85.50	233.51			7,258.55	54.70	132.70
Madison	3,414.10			1,168.56		48.85		21.16	147.76			4,800.43	82.27	58.35
May Day	2,650.49		133.75	1,013.83		25.00	150.00	47.00	138.05		40.52	4,198.64	44.75	93.82
Ogden	5,822.37			406.18	2.00	17.35	45.00	32.85		429.77	5.32	6,760.84	40.00	169.02
Seven Mile	594.04	1,475.00		70.15		8.05		92.00	55.38		3,971.89	6,266.51	50.18	123.88
Sherman	1,081.43			384.79			5.00	32.50	1,355.09			2,858.81	41.50	68.89
Swede Creek	5,594.94		1,700.00	691.77	855.00	50.03		2.50	189.13		707.00	9,790.37	61.91	158.14
Wild Cat	1,411.30	889.45		586.10	1,829.37	89.60		116.80	255.80		150.40	5,328.82	62.02	85.92
Zeandale	1,484.86	3,422.52		32.77		1.40		136.50	9.20			5,087.25	48.41	105.09
Total	\$38,194.76	\$9,594.82	\$5,055.96	\$8,864.66	\$3,177.09	\$736.91	\$1,196.45	\$1,152.26	\$4,286.22	\$444.77	\$4,882.92	\$77,586.82	749.42	103.52 ²

¹All data were taken from the township records made to the county clerk.²Average cost per mile for 1931.

still practiced. The townships that do not have regular patrolmen employ laborers by the day as necessary. Few of the townships owned adequate machinery to do grading and some other types of work, consequently they contracted this work with the Riley County Highway Department, or with individuals who furnished the necessary equipment.

Paid to Riley County

This item was for work, usually for grading or bridge construction. The amounts naturally fluctuated from year to year and from township to township.

Supplies

Supplies consisted of lumber, culverts, wire, nails, fence, cement, dynamite, posts, and other articles needed for road and bridge work. This item fluctuated between 10% and 14% of the total expenditures during the four years included in this study.

Equipment Purchase and Repair

This item of expense included payment for tractors, graders, fresnos, and small equipment. Repairs included blacksmithing and other minor repairs on the road equipment.

The amount spent for the purchase of equipment was

Table 6. Road and Bridge Expenditures in Townships of Riley County for 1932.

Township	Labor	Patrol	Paid to Riley County	Supplies	Equipment Purchase	Equipment Repair	Right of Way	Board	Undivided	General	Notes and Interest	Total	No. of Miles Maintained	Cost per Mile
Ashland	\$ 84.95	\$1,432.50	\$	\$ 72.73	\$ 306.59	\$ 7.05	\$	\$ 66.50	\$ 70.57	\$ 10.00	\$	\$ 2,050.89	25.05	\$ 81.87
Bala	3,238.92			771.69		11.35	25.00	92.20	67.00	21.25		4,227.41	69.75	60.61
Center	1,713.93		1,000.00	233.20	374.51	12.25	20.00	23.50	35.95	5.00		3,418.34	30.60	111.71
Fancy Creek	3,450.89		1,146.96	44.60	52.08	18.79		6.00	92.55	22.50		4,834.37	54.00	89.52
Grant	1,630.02			624.83	55.13	90.48	167.42	115.00	180.23	7.50	65.23	2,935.84	42.32	69.37
Jackson	3,174.79			518.47	212.40	20.45		81.50	418.22	87.30		4,425.83	41.99	105.40
Manhattan	1,372.95	1,238.16	169.41	532.96		315.42	54.00	56.00	83.78	83.75		3,909.98	54.70	71.48
Madison	1,773.28			619.36		125.21	15.00	62.93				2,679.53	82.27	32.57
May Day	2,545.50		564.73	771.43	650.00	1.40	30.00	23.75	157.45			4,744.26	44.75	106.02
Ogden	931.64			88.66		5.81	7.27	33.43	8.72	56.68	321.21	1,453.42 ¹	40.00	36.22
Seven Mile	444.20	1,370.00	146.01	252.03			25.00	101.21	41.23		1,152.28	3,531.96	50.18	70.38
Sherman	1,397.16		680.27	166.10		7.70	5.00	32.40	459.49	10.00		2,758.12	41.50	66.46
Swede Creek	2,944.95		2,367.56	342.04		14.30	41.40		53.49	273.14		6,036.88	61.91	97.51
Wild Cat	2,468.55		138.07	721.82	745.20	17.60	20.00	133.95	88.50	8.40		4,342.09	60.02	72.34
Zeandale	805.87	1,362.00	367.31	36.05			40.00	127.50	8.00			2,746.73	48.41	56.74
Total	\$27,977.60	\$5,402.66	\$6,580.32	\$5,795.97	\$2,395.91	\$647.81	\$450.09	\$955.87	\$1,765.18	\$585.52	\$1,538.72	\$54,095.65	749.45	\$ 72.19 ²

¹Total expenditure taken from the township report to the county engineer.²Average cost per mile for 1932.

small. When the total amount so spent was divided among the 15 different townships it averaged about \$210 per township for 1931, \$160 for 1932, \$62 for 1933, and \$160 for 1934. With one or two townships buying a tractor or grader each year the other townships could buy only small tools with which to do the necessary work.

Right of Way

As roads are maintained or improved it is often necessary to straighten or widen the road. These payments were made to property owners for land that was needed.

Board Services

The township board members are paid from the road fund for road viewing and for meetings held in connection with the administration of township roads. They have other official duties for which they are supposed to be paid from the township general fund, although they were often paid from either fund.

Undivided

A complete analysis of township expenditures is impossible because of the way in which some of the annual reports were made. Several items were often included in one entry.

Table 7. Road and Bridge Expenditures in Townships of Riley County for 1933.

Township	Labor	Patrol	Paid to Riley County	Supplies	Equipment Purchase	Equipment Repair	Right of Way	Board	Undivided	General	Total	No. of Miles Maintained	Cost per Mile
Ashland	\$ 39.40	\$1,105.00	\$	\$ 2.50	\$ 16.90	\$ 5.95	\$	\$ 45.00	\$ 10.95	\$ 46.64	\$ 1,272.34	23.64	\$ 53.82
Bala	2,425.85			157.83	38.46	13.30		87.00	160.60	53.27	2,936.31	68.75	42.71
Center	1,350.67		8.00	256.98	23.20	13.70		82.30	17.53		1,752.38	30.60	57.27
Fancy Creek	1,476.92		300.00	288.43		7.00		4.50	147.60	69.90	2,294.35	45.00	50.98
Grant	859.38			394.20		88.28		100.26	221.69	31.16	1,694.97	39.38	43.05
Jackson	1,558.94			119.68		9.20		163.17	11.60		1,862.59	41.79	44.57
Manhattan	2,110.33	400.50		515.55	500.00	210.29		96.00	233.39	143.74	4,209.80	53.67	78.44
Madison	1,108.50	356.76		687.48		211.90		88.72	163.61	6.00	2,622.97	82.27	31.88
May Day	728.40		500.00	552.45	38.18	16.00			82.70	102.47	2,020.20	44.75	45.14
Ogden	1,139.07			248.81		24.80	10.00	216.30	2,460.61		4,099.59	40.25	101.85
Seven Mile	743.33	1,069.99	262.99	163.59				53.27	83.26	29.76	2,406.19	50.18	47.95
Sherman	1,754.60			223.38	27.58	11.70	5.00	34.25	99.05	106.80	2,262.36	41.23	54.87
Swede Creek	2,542.04			466.98	285.41	24.80	5.00	40.83	85.41		3,450.47	61.66	55.96
Wild Cat	1,024.69	370.35	813.80	606.25		59.00		220.00	44.15	67.76	3,206.00	60.96	52.59
Zeandale	480.16	980.26		88.13				132.75	5.50		1,686.80	48.66	34.66
Total	\$19,342.28	\$4,282.86	\$1,884.79	\$4,772.24	\$929.73	\$695.92	\$20.00	\$1,364.35	\$3,827.65	\$657.50	\$37,777.32	732.79	\$ 51.55 ¹

¹Average cost per mile for 1933.

A few examples will illustrate this:

1. \$85.12 paid for labor, material and board service.
2. \$77.00 paid for labor and bearings.
3. \$32.06 paid for board service and labor.
4. \$17.00 paid for board meeting and etc.
5. \$58.50 paid for labor and material.

If a separate entry had been made for each item included, labor, supplies, and board services would have been considerably higher.

General

The township accounts should be divided into road and general, though only a few townships charged any expense to the general fund in 1931, and even in 1934 all the townships were not allocating their expenditures between the road and general funds. The intention of the general fund was to use it for payment of election expenses, advertisement of the township budget, budget meetings, and other township expenses not directly chargeable to road expense; however, it seemed difficult for some of the board members to distinguish between the two funds and some expense that was chargeable to the road fund was taken from the general fund, while some items of expense chargeable to the general fund were taken from the road fund. A few townships charged practically all of their board service to the general fund while other townships charged none of the board service to

Table 8. Road and Bridge Expenditures in Townships of Riley County for 1934.

Township	Labor	Patrol	Paid to Riley County	Supplies	Equipment Purchase	Equipment Repair	Right of Way	Board	Undivided	General	Total	No. of Miles Maintained	Cost per Mile
Ashland	\$ 697.75	\$ 810.00	\$	\$ 27.61	\$ 9.95	\$ 10.75	\$	\$ 87.50	\$ 88.00	\$ 23.75	\$ 1,755.31	23.64	\$74.25
Bala	670.82	316.55		881.70	1,568.80	23.45		105.59	10.20	125.75	3,702.86	68.75	53.86
Center	2,345.37			79.30			42.00		52.40	104.50	2,623.57	30.60	85.74
Fancy Creek	1,334.70			152.43				10.50	491.32	53.65	2,042.60	43.60	46.85
Grant	982.42			463.08		5.50		106.70	18.77	85.50	1,661.97	39.38	42.20
Jackson	1,955.64			106.02	15.80	32.54	171.91		125.13	209.19	2,616.23	38.66	67.67
Manhattan	1,725.23			616.77		147.01		151.10	211.53	120.00	2,971.64	53.67	55.37
Madison	1,532.58			698.43		154.97		83.32	119.76	26.00	2,615.06	82.27	31.79
May Day	813.44			75.26		30.48		9.00	100.00	30.93	1,059.11	39.75	26.64
Ogden	2,036.63		158.83	539.32	557.25	26.25		204.25	96.05	265.94	3,884.52	39.25	98.97
Seven Mile	971.60	881.83	94.33	367.58		6.00	39.86	108.20	21.12	35.34	2,525.86	50.18	50.22
Sherman	911.61			166.48	196.00		5.00	45.85	152.60	94.76	1,572.30	41.23	38.13
Swede Creek	2,068.03			300.51	30.90		435.69	73.05	58.60	93.02	3,059.80	58.88	51.97
Wild Cat	2,004.77		103.50	1,038.20		215.37		214.00	40.40	100.03	3,716.27	60.96	60.96
Zeandale	555.03	1,015.06		26.33				104.00	4.40	23.80	1,728.62	48.66	35.52
Total	\$20,605.62	\$3,023.44	\$356.66	\$5,539.02	\$2,378.70	\$652.32	\$694.46	\$1,303.06	\$1,590.28	\$1,392.16	\$37,535.72	719.48	\$52.31 ¹

¹Average cost per mile for 1934.

the general fund. The items of expense under general make up a small part of the total expense.

Notes and Interest

This item was important before the budget and tax limitation laws became effective. Several of the townships were in debt. This was not true in all cases as a few of the townships had a balance of several thousand dollars carried over from year to year.

Number of Miles Maintained

Tables 5 to 8, inclusive, show the number of miles of road each township maintained during the four year period studied. Each township maintained approximately the same mileage throughout the four years. A few decreased their mileage, and none increased their mileage. There was a total decrease of 30 miles maintained from 1931 to 1934. The smallest mileage maintained in any one township was 23.64 miles, and the largest mileage maintained in any one township was 82.27 miles.

Cost per Mile

The cost per mile for the different townships is shown in tables 5 to 8, inclusive. The cost per mile in 1931

ranged from \$58.35 in one township to \$169.02 in another township. The average cost per mile for that year was \$103.52. Costs per mile dropped considerably in the three years following 1931. The average cost per mile being \$72.19 in 1932, \$51.55 in 1933, and \$52.31 in 1934. The lowest cost per mile was \$26.64 for one township in 1934. The township with the highest mileage was consistently one of the lowest in cost per mile.

JEFFERSON COUNTY ROADS

Jefferson County adopted the county unit system of roads in 1930, but the new system did not become effective until 1931. The tax levies for money spent in 1931 were made the previous year by the township and county officials.

The county road mileage prior to the adoption of the county unit road system consisted of 161 miles; to this mileage was added about 700 miles of township road that was given full-time maintenance under the new system.

Jefferson County roads are divided into patrols varying in length from 15 miles to 35 miles. The longer patrols are maintained by power machinery. During 1931 and 1932 the county owned 12 tractors and graders that were used on patrol work. The operators were full-time county employees. The same years 5 full-time horse drawn graders were used,

and 15 part-time horse-drawn graders were used. In 1933 the county added two more motor patrolmen and kept the same number of horse-drawn patrols, but the number of days each week that work was done was reduced. Another patrolman was added in 1934, making a total of 35 patrolmen. The men worked the same number of days each week as they worked in 1933, but received cuts in pay ranging from 10% to 25%. The split-log type of drags have been discontinued on all except 15 miles of the roads maintained.

Many of the township roads had never been graded when the county unit system was adopted. Since that time all the roads have been graded and better drainage provided. About 26 miles of road has been surfaced with sand, gravel, or crushed rock since the county unit system was adopted. Local labor was used wherever possible. The most of the patrolmen were farmers who devoted a definite part of each week to road work.

As the elements of road and bridge costs were practically the same the expenditures have been combined and are shown in the same tables for each year.

Salary and Labor

Salary and labor were the greatest of all the items of expense in 1931. (See table 9.) More than \$73,000 were

Table 9. Jefferson County Highway Department Road and Bridge Expenditures for 1931.¹

Item	Road	Bridge	Total
Salary and Labor	\$ 68,031.01	\$ 5,706.24	\$ 73,737.25
Supplies	8,397.25	13,766.04	22,163.29
Equipment Purchased	25,436.93	135.00	25,571.93
Equipment Repair	3,862.97	139.45	4,002.42
Gasoline and Oil	12,343.41	123.71	12,467.12
Right of Way	2,190.35	506.48	2,696.83
Personal Injury	83.00		83.00
Contract Payment	13,028.40	24,883.06	37,911.46
Car Expense-Engineer	35.60		35.60
Road views	<u>15.00</u>	<u> </u>	<u>15.00</u>
Total	\$133,423.92	\$45,259.98	\$178,683.90

spent for salary and labor; this composed about 41% of the total expenses.

In 1932 the amount spent for salary and labor was reduced, but not in the same proportion as other expenses, as the total amount spent for all purposes was reduced more than \$76,000. The percentage spent for salary and labor increased for the year and amounted to 48% of the total

¹All data were taken from the county highway engineer's records.

Table 10. Jefferson County Highway Department Road and Bridge Expenditures for 1932.

Item	Road	Bridge	Total
Salary and Labor	\$44,689.42	\$ 4,490.69	\$ 49,180.11
Supplies	2,142.33	15,407.51	17,549.84
Equipment Purchased	10,707.61	960.12	11,667.73
Equipment Repair	4,129.90	1,019.40	5,149.30
Gasoline and Oil	13,733.91	192.14	13,926.05
Right of Way	437.00	309.50	746.50
Personal Injury	16.20	108.00	124.20
Contract Payment	3,799.85	64.00	3,863.85
Car Expense-Engineer	68.43		68.43
Road Views	<u>60.00</u>	<u> </u>	<u>60.00</u>
Total	\$79,784.65	\$22,551.36	\$102,336.01

expenditures.

The amount spent for salary and labor in 1933, as shown in table 11, decreased to about 40% of the total expenditures although the total expense was about the same in 1933 as in 1932.

Table 12 shows the total road and bridge expenditures increased a few thousand dollars in 1934. Amounts paid for salary and labor also increased, making up 48% of the total spent.

Table 11. Jefferson County Highway Department Road and Bridge Expenditures for 1933.

Item	Road	Bridge	Total
Salary and Labor	\$36,651.88	\$ 3,911.52	\$ 40,563.40
Supplies	3,104.68	9,861.23	12,965.91
Equipment Purchased	21,422.74	34.96	21,457.70
Equipment Repair	3,354.82	449.84	3,804.66
Gasoline and Oil	11,020.67	754.19	11,774.86
Right of Way	120.47	37.00	157.47
Contract Payment	1,999.75	8,184.96	10,184.71
Car Expense-Engineer	226.64	233.84	460.48
Road Views	<u>12.00</u>	<u> </u>	<u>12.00</u>
Total	\$77,913.65	\$23,467.54	\$101,381.19

County prisoners were worked on the roads. This work, however, was a negligible amount. The only expense to the road and bridge fund for the prison labor was for the necessary clothing furnished the prisoners.

Supplies

Supplies for road and bridge maintenance and construction consists of lumber, sand, gravel, cement, wire, bridge timber, nails, culverts, grader blades, and other materials. A greater portion of the total spent for supplies in 1931

Table 12. Jefferson County Highway Department Road and Bridge Expenditures for 1934.

Item	Road	Bridge	Total
Salary and Labor	\$37,018.13	\$15,233.31	\$ 52,251.44
Supplies	6,516.72	26,288.12	32,804.84
Equipment Purchased	1,295.33		1,295.33
Equipment Repair	5,443.36	843.04	6,286.40
Gasoline and Oil	12,821.25	1,635.20	14,456.45
Right of Way	258.80	50.00	308.80
Contract Payment	291.30	247.91	539.21
Car Expense-Engineer	293.54	90.09	383.63
Road Views	<u>85.95</u>	<u> </u>	<u>85.95</u>
Total	\$64,024.38	\$44,387.67	\$108,412.05

was from the bridge fund. (See table 9.) Many new culverts were installed and old culverts were replaced by new ones which provided better drainage. The combined totals spent for supplies in 1931 amounted to \$22,000, which was about 12% of the total expenditures for the year.

Table 10 shows that supplies for 1932 were decreased somewhat from the previous year, but the entire amount equaled 17% of all expenses, due to the large decrease in the total expenditures. Another reduction in expenditures for supplies was made in 1933, as is shown in table 11.

Supply expenditures for 1933 amounted to 12% of all expenses.

Table 12 shows the amount spent for supplies in 1934 was increased to 30% of the total expense, although the total expenditures increased only a few thousand dollars.

Equipment Purchased

This item consists of tractors, trucks, cars, concrete mixers, graders, and other equipment. When the county unit system of roads was adopted the county salvaged the equipment that was usable and disposed of the remainder. Much new equipment was needed during the first year of operation of the county unit system because the split-log type of drags were the main equipment formerly used to maintain the township roads.

Table 9 shows that about 14% of all expenditures in 1931 was for equipment.

In 1932 only 11% of expenses was for equipment; however, more equipment was purchased in 1933 and this item amounted to 21% of the expenditures for that year. Equipment purchase was negligible in 1934. (See Tables 10 to 12.) By the end of 1934 the county owned all the graders used and nineteen tractors.

The county highway board has hesitated to purchase all

the equipment needed for county use, because the county unit system has not become sufficiently well established in that county.

Equipment Repair

Expense for repair of equipment was not as sensitive to changes as were many other items of expense. (See tables 9 to 12, inclusive.) The repairs amounted to about 4% of the total expenditures for the four years studied.

Gasoline and Oil

The gasoline and oil used was an important item of expense. Table 9 shows that this amounted to 7% of the total expenses in 1931. After reductions were made in the total expenditures for the following years gasoline and oil constituted 14%, 11%, and 13%, respectively, of the total road and bridge expense. The amount expended for gasoline and oil remained rather constant throughout the four years of this study.

Right of Way

Efforts were made to improve the county roads. This improvement was often made by building the road to a standard and eliminating sharp curves, as well as providing

better drainage. During the four years of this study the sum spent for right of way amounted to only a fraction more than 1% of the total expenditures.

Personal Injury

Personal injury was a small item of expense for two years. This consisted of medical attention to county employees following injuries.

Contract Payment

Contract payments were important items of expense during the first three years of this study. Part of the construction of both roads and bridges was done by contract. This item amounted to 21% of the total expenditures in 1931, 4% in 1932, 10% in 1933, and was negligible in 1934. Most counties abandoned this form of payment during the years of low incomes, to some extent because contractors used their trained workers instead of local laborers. A factor of importance in the use of contract payment in Jefferson County was that the county did not have adequate equipment in the earlier years.

Car Expense-Engineer

This item constitutes the payments to the county

engineer for the use of his personal automobile for county business. In 1931 and 1932 a county-owned car was used by the engineer, but in 1933 and 1934 the county highway engineer used his personal automobile. The entire payments for this purpose make up a small part of the total expenditures.

Road Views

The county commissioners are paid for viewing the county roads. The sum spent for this was small; however, this represents the total amount drawn from the road and bridge fund by the county commissioners.

THE EFFECTS OF THE TOWNSHIP ROAD SYSTEM AND THE COUNTY UNIT ROAD SYSTEM ON AGRICULTURE

The income from agricultural products in Jefferson County was approximately \$3,771,000 in 1931.¹ The taxes collected for the road and bridge funds were more than \$84,000,² or about 2 $\frac{1}{4}$ % of the total agricultural income.

In 1932 the income from agricultural products in Jefferson County decreased more than \$1,000,000, or about 39%. Taxes collected that year for the road and bridge fund

¹Kansas State Board of Agriculture Biennial Report.
33:325. 1931-1932.

²Information regarding taxes collected in Jefferson County was obtained from the Secretary of the State Tax Commission.

took more than 3% of the agricultural income. During 1933 the farm income was greater¹ than in 1932, but tax collections decreased. The total tax collected for road and bridge purposes amounted to about $2\frac{1}{2}\%$ of the farm income for that year.

In 1934 the farm income was not as large as during the previous year. The county highway taxes were reduced to less than \$40,000, and this amounted to about $1\frac{1}{2}\%$ of the farm income.

The data shown in the tables of expenditures do not represent the tax burden of the county highway on agriculture, because an important source of revenue is from the gasoline apportionment fund received from the state highway treasurer. The gasoline apportionment has tended to benefit Jefferson County. In every year of this study more money was received from the gasoline fund than the amount of the gasoline taxes collected within the county.

The income from agricultural products in Riley County was \$3,200,000 in 1931.² Of this sum \$135,000 were collected in taxes for the road and bridge funds. This was 4.2% of the total agricultural income in Riley County. The income from agricultural products was reduced by 28% in

¹Kansas State Board of Agriculture Biennial Report. 34:371. 1933-1934.

²Kansas State Board of Agriculture Biennial Report. 33:399. 1931-1932.

1932, and the taxes for road and bridge funds were reduced to 3.2% of the farm income. During 1933 and 1934, taxes were greatly reduced, being 1½% and 1.8%, respectively of the total agricultural income.

COMPARISON OF THE TOWNSHIP ROAD AND COUNTY UNIT ROAD SYSTEMS

A large percentage of the total expenditures was spent for salaries and labor in both Riley and Jefferson counties; a higher percentage of the total was spent in Riley County than in Jefferson County. This is due in part to the high total cost of labor on the township roads as compared with their other items of expense.

Whenever possible road work was provided to relieve unemployment, regardless of whether it was the county unit road system of Jefferson County, the county highway department of Riley County, or the township road system in Riley County.

When the Riley County Highway Department expenditures for supplies is taken together with the Riley County township expenditures for supplies there is considerable difference in the amounts spent for road and bridge supplies in Riley and Jefferson counties. However, by far the larger part of the supplies in Riley County were used by the

Riley County Highway Department. The supplies purchased by the Jefferson County road system and the supplies purchased by the Riley County Highway Department were more comparable. Jefferson County surfaced about 26 miles of road and a little more than 70 miles of Riley County roads were surfaced. The supplies bought by the townships, when averaged among them were negligible.

Jefferson County purchased about three times more equipment during the period of this study than did the Riley County Highway Department and the Riley County townships together. Large purchases of equipment in Jefferson County were necessary because of the inadequate equipment on hand when the county unit system was adopted. By the end of 1934 Jefferson County owned a sufficient number of graders to maintain all the roads in that county and 14 county-owned tractors were being used on regular patrols. Much other necessary equipment was also bought by Jefferson County during that time. The equipment bought by the Riley County townships was inadequate to properly maintain and improve the number of miles of road they were required to maintain.

Equipment repairs were fairly constant in both of the counties, and amounted to about the same over a period of years.

Gasoline and oil were important items of expense in

both counties, but amounted to about 40% more in Jefferson County than in Riley County. More motor patrols were maintained in Jefferson County than in Riley County.

Riley County spent more than twice as much for right of way during the period of this study than did Jefferson County.

Jefferson County used the contract payment method of construction throughout the period, although it was relatively unimportant in 1934. This form of construction was abandoned in Riley County in 1931.

Several small items of expense such as, power and telephone, insurance, personal injury, and road views were not comparable because they did not appear in both of the counties.

The Riley County road cost per mile was much higher than the cost per mile in Jefferson County. When it is taken into consideration that the Riley County Highway Department surfaced almost three times as much road as did Jefferson County during the period studied the difference in cost per mile of these two county road departments may be readily understood. The salaries of the road officials in Jefferson County are extended over many more miles of road than are the salaries of the road officials of the Riley County Highway Department.

When the mileage and cost per mile for the Riley County roads and the township roads in Riley County are combined they more nearly equal the mileage and the cost per mile in Jefferson County. The cost per mile in the townships of Riley County were too low to permit of much improvement and only a moderate amount of maintenance.

When the township roads and the county roads in Riley County were combined they showed a cost per mile of \$159.27 in 1931, \$131.29 in 1932, \$111.80 in 1933, and \$110.30 in 1934. The cost per mile in Jefferson County was \$155.60 in 1931, \$93.04 in 1932, \$90.86 in 1933, and \$74.67 in 1934.

SUMMARY

The principal sources of revenue available for use by the county unit road system of Jefferson County and the township road system of Riley County are the gasoline tax and the direct property tax. Bond issues to secure additional revenue for road purposes were resorted to, regardless of the road system or whether it was a period of high or low agricultural income.

There are four supervisory officials under the county unit system of roads, these officials consist of the three county commissioners and the county engineer. A county with the township system of roads will have three supervisory

officials for each township in the county, plus the four supervisory officials for the county roads. This makes 49 road officials in Riley County, which means a wide division of road planning. All the roads of a county under the county unit road plan have the benefits accruing by the supervision of a trained engineer, while under the township system only the county roads are built and maintained under the direction of an engineer. The township roads are not coordinated or supervised by trained employees.

It may be possible to have more desirable road equipment for use on all the roads of a county under the county unit system than is possible under the township road system, due to the centralization of purchases. This will depend upon the managerial ability of the road officials.

Part of the tax burden is shifted from the agricultural area of a county to the cities of the first, second, and third classes when the county unit road system is adopted. This should make it possible to lower the tax burden on agricultural land.

Efficiency and favoritism do not depend on the system of roads. During the period of this study road maintenance was used as a means of relieving unemployment and distress, and at such times efficiency is not considered of major importance. A long time plan for permanent improvement of

roads can not be very well followed when unemployment must be considered.

The direct property tax caused a slightly heavier burden on agriculture in Riley County than did the direct property tax in Jefferson County. The average for the four years being 2.7% in Riley County and 2.3% in Jefferson County.

The income from agricultural products was higher in Jefferson County than in Riley County.

Jefferson County tax levies for road purposes constituted more of their expenditures than did Riley County tax levies. Riley County issued more bonds for road expenditures than did Jefferson County.

The largest items of expense in both counties was salaries and labor.

Supplies ranked second in importance of the different items.

Both Riley and Jefferson counties spent larger sums of money for equipment in the earlier period of this study than in the later period.

Equipment repairs were relatively unimportant in so far as total expenditures were concerned.

Gasoline and oil expenditures were fairly constant in amounts in both counties.

Contract payment was practically abandoned as a means of construction because the counties acquired more adequate equipment and contract payment often used outside labor.

Right of way costs, employee insurance, personal injury, engineer's travel, and road views were of minor importance throughout the study.

CONCLUSIONS

The road costs for construction and maintenance in the two counties studied were less under the county unit system than under the township system; however, the condition of the roads at the beginning of the period is not known.

Riley County Highway Department surfaced about three times as many miles of road as did Jefferson County.

Both counties used their road system as a means of relieving unemployment during the period. Efficiency in expenditures was probably not the main objective.

The county unit road system offers opportunity for coordination of secondary roads.

Roads constructed and maintained by the Riley County Highway Department are found to be at a higher level of quality than are the Riley County township roads.

As conditions existing at the beginning of this study are not known no estimate of improvement can be made in

regard to the two systems.

Taxing cities of the first, second, and third classes for township roads appears to be unjust.

The county unit road system offers the possibility of better roads, but there is no assurance that roads will be greatly improved under that system.

More definite conclusions could be made if a larger number of counties had been studied.

A cost per mile is not an equitable basis for comparing the two road systems. Condition of the road bed at the beginning of the construction, width of road, amount of drainage provided, type of soil, kind of surfacing, availability of surfacing material, and adequacy of equipment owned are some of the factors that must be considered when cost per mile is used to determine the efficiency of either road system.

The tax rate for road purposes was reduced in Jefferson County following the adoption of the county unit road system, but that has not been the case in all counties which have adopted the county unit road plan. In some counties the tax rate has been raised.

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